

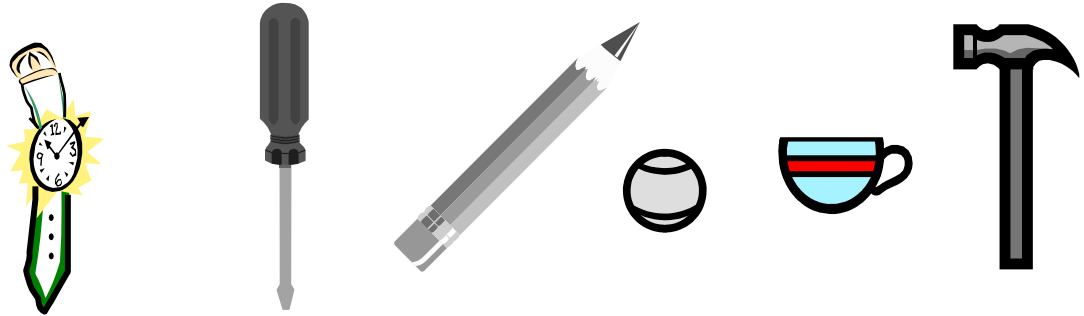
**MEAP**

**MICHIGAN  
EDUCATIONAL  
ASSESSMENT  
PROGRAM**

**Grade 5  
Science**

***Released Items  
Winter 2004***

- 6 Teresa was cleaning out her room one evening and found the following items under her bed:



Teresa divides the items into two groups. Group one includes the watch, screwdriver, pencil, and hammer. Which of the following properties has she used to classify the items?

- A smell
- B shape
- C weight
- D flexibility



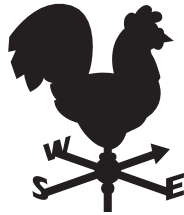
- 9 In the spring, Clara's father hangs the washed clothes outside on a clothesline to dry. Which of the following conditions will help the clothes to dry faster?
- A fog
  - B rain
  - C wind
  - D snow

- 10 Heidi has a brand new fish tank to put in her bedroom. She has to keep the temperature in the tank above  $19^{\circ}\text{C}$ . Which instrument can she use to check the temperature in the tank?

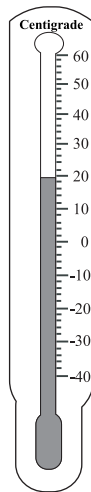
A



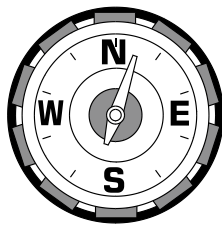
B



C



D



Use the following information to answer item 14.

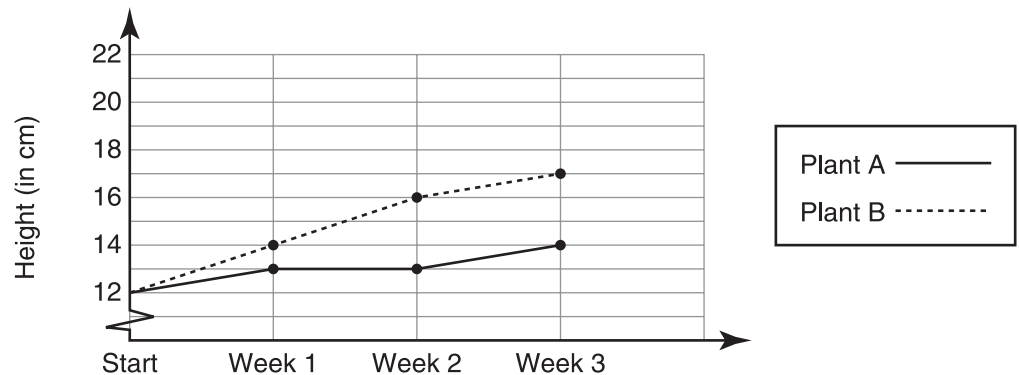
Samantha is setting up an investigation to determine the effect of light on plant growth. She has purchased two plants of the same type that are approximately the same height. She plans to place the plants in identical containers and give them measured amounts of water and fertilizer. Plant A will be placed under a desk lamp for 4 hours per day, and Plant B will be placed under a desk lamp for 8 hours per day. She has developed the following chart to record her data.

Plant	Amount of Light (hours)	Starting Height	Water Daily	Fertilizer Weekly	Week 1 Height	Week 2 Height	Week 3 Height
Plant A							
Plant B							

ANSWER THE FOLLOWING CONSTRUCTED-RESPONSE ITEM IN YOUR ANSWER FOLDER.

**14 Constructed-Response**  
**(3 points)**

At the end of her investigation, Samantha put her data on a graph.



- How much did Plant A grow in the three-week period?
- How much did Plant B grow in the three-week period?
- What conclusion can be drawn from Samantha's investigation?

NOTHING WRITTEN IN THIS TEST BOOKLET WILL BE SCORED.

**MEAP Winter 2004**  
**Grade 5 Science**  
**Item 14**

**Sample Response:**

- Plant A grew 2 centimeters or inches in three weeks.
- Plant B grew 5 centimeters or inches in three weeks.
- Increased light contributes to increased growth in plants.  
**OR**
- The plant that received more light grew more than the plant that received less light.  
**OR**
- The amount of light affects the growth of a plant.

**Scoring Guide:**

**3 points** = the student correctly identifies the growth for plant A and plant B and provides an acceptable conclusion.

**2 points** = the student correctly identifies the growth for both plant A and plant B but fails to provide an acceptable conclusion.

**OR**

the student correctly identifies the growth for only one of the plants and provides an acceptable conclusion.

**OR**

the student identifies the final heights for plant A and plant B (in centimeters or inches) and provides an acceptable conclusion.

**OR**

the student correctly identifies the growth for both plant A and B *without correct units* and provides an acceptable conclusion.

**1 point** = the student correctly identifies the growth for one of the plants.

**OR**

the student provides an acceptable conclusion.

**OR**

the student correctly identifies the final heights of both plant A and plant B (in centimeters or inches).

**OR**

the student correctly identifies the growth for both plant A and B *without correct units*.

**0 points** = the student correctly identifies the final height of one or both plants *without correct units*.

**OR**

the student correctly identifies the final height of one plant (in centimeters or inches).

**OR**

the student fails to provide any correct information.

14

## Constructed Response

In a three week period plant A grew two centimeters. In the same amount of time plant B grew five centimeters. The conclusion of the plants is that since plant B was under the light for eight hours it grew more. Plant A only had four hours of light and was smaller than Plant B. This conclusion comes out that the more light you have the healthier it will be and the bigger it will grow.

**Score Point: 3**

This response correctly identifies the growth for Plant A and Plant B (2 cm and 5 cm) and provides an acceptable conclusion (the more light you have the healthier it will be and the bigger it will grow).

14

- Constructed Response

~~A o~~ Plant A grew from 13cms to 14 cms in the third week period. Plant B grew from 16 cms to 17cms in the third week period. That when a plant gets more light it grows quicker than a plant with less light.

Score point: 2

This response correctly identifies the final heights for Plant A and Plant B (14 cm and 17 cm) and provides an acceptable conclusion (When a plant gets more light it grows quicker than a plant with less light).



14

- Constructed Response

- plant a grew from 12-17 inches. It grew 5 inches in three weeks
- plant b grew from 12 to 14 inches. It grew only 2 inches in three weeks
- you can conclude that the longer you have a plant in the sun the more it will grow.

**Score point: 1**

This response provides an acceptable conclusion (the longer you have a plant in the sun the more it will grow).

14

 - Constructed Response

- 13 cm
- 17 cm
- they are 4 cm apart

**Score point: 0**

This response correctly identifies the final height for one plant (Plant B – 17 cm).

- 15 Which of the following is **NOT** something that can happen to water after it falls to Earth?
- A It evaporates.
  - B It becomes extinct.
  - C It seeps into the ground.
  - D It runs off into lakes and rivers.
- 19 Natural processes change the surface of Earth. Some changes occur rapidly and some occur slowly. Which of the following would cause the slowest change in Earth's surface?
- A wind
  - B landslides
  - C volcanoes
  - D earthquakes

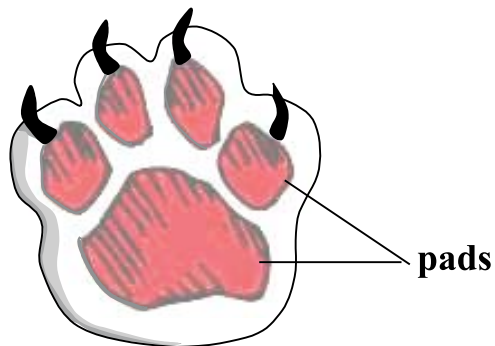
Use the following information to answer items 44 through 46.



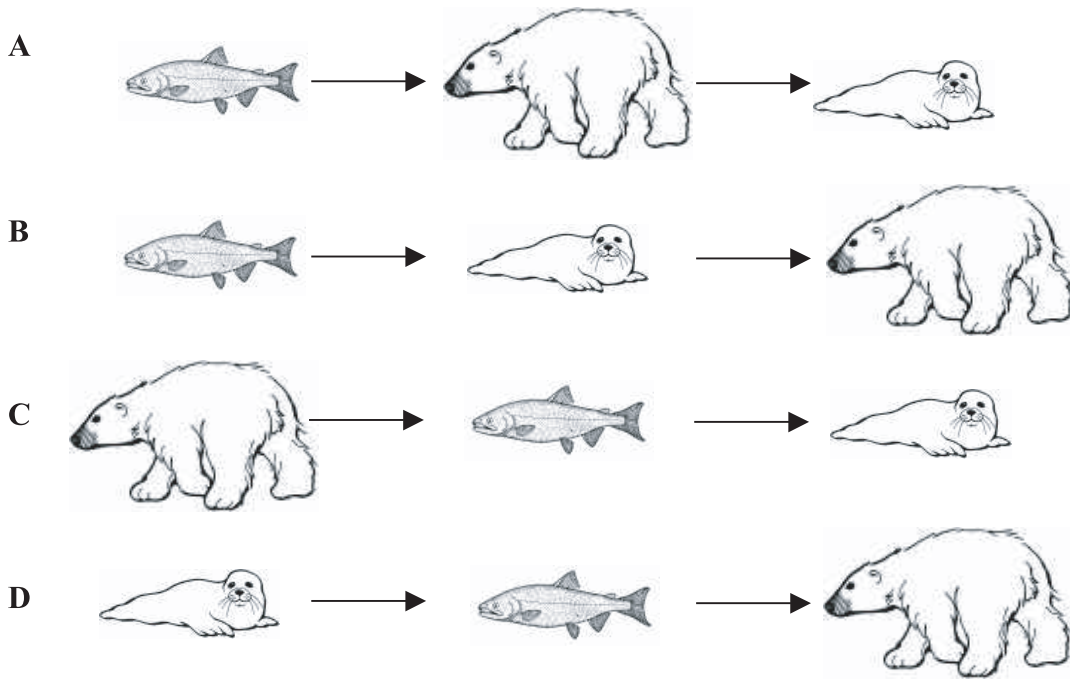
Polar bears are the world's largest land predators. Their main prey is the seal, but they also eat great quantities of fish. Polar bears generally live only where there is year-round snow and ice.

- 44 The main food source of seals is fish. The polar bears' main food source is seal, but they also eat fish. Which of the following *best* describes the seal?
- A The seal is prey only.
  - B The seal is a predator only.
  - C The seal is a predator and prey.
  - D The seal is a producer and prey.

- 45 Polar bears have thick footpads on the soles of their feet. How do these pads, shown below, benefit the bear?



- A They help the bear catch more seals.
- B They help the bear climb trees to look for food.
- C They help the bear swim faster when hunting fish.
- D They help the bear walk on ice and protect it against cold.
- 46 Seals are the main food source of polar bears. Fish are the main food source of seals. Which of the following is a correct food chain showing this relationship?



**ANSWER THE FOLLOWING CONSTRUCTED-RESPONSE ITEM IN YOUR ANSWER FOLDER.**

**47   Constructed-Response  
(3 Points)**

- List *at least two* traits that polar bears have that help them survive in their environment.
- Explain how each of these traits helps them survive.

**NOTHING WRITTEN IN THIS TEST BOOKLET WILL BE SCORED.**

**MEAP Winter 2004**  
**Grade 5 Science**  
**Item 47**

**Sample Response:**

- (White) fur for camouflage
- (Thick) fur for warmth/insulation
- (Sharp) teeth for hunting/killing/eating prey
- (Sharp) claws for hunting/killing prey
- Foot pads for gripping the ice or to keep its feet warm
- Layer of fat for insulation
- (Webbed) paws to help them swim
- Large size means fewer predators are able to kill it or helps to kill smaller prey.
- Aggressive behavior means fewer predators are able to kill it or helps to kill smaller prey
- Nose to smell its prey

**Scoring Guide:**

3 points = the student correctly lists and explains two traits.

2 points = the student correctly lists two traits and explains one.

1 point = the student correctly lists two traits but gives no explanation.

**OR**

the student correctly lists and explains one trait.

0 points = the student lists one trait without an explanation.

**OR**

the student does not correctly list any traits.

47

Constructed-Response 2

Polar Bears have paws that are sharp. Polar Bears also have pads on there paws and water proof fur. They also have sharp teeth. Polar Bears use there paws for taking up a Seal. They use ther pads to keep there paws warm. There water proof coat is used to stay warm ad it lets them swim faster. There sharp teeth are for attacking and chew the Seals fat.

**Score Point: 3**

This response correctly lists four traits and correctly explains three traits (pads to keep their paws warm; waterproof fur to stay warm; sharp teeth for attacking and chewing the seal's fat). Paws is an additional listing, but the explanation provided is not acceptable.



47

## Constructed-Response 2

The polar bear has these traits that help them survive the coldness like their thick fur coat and their swimming techniques and their webbed paws.

## Score Point: 2

This response correctly lists two traits and correctly explains one (thick fur coat helps him survive the coldness; webbed paws).

## Constructed-Response 2

Two traits polar bears have that help them survive in their environment are their thick footpads on the soles of their feet and the seals and fish they eat for food. Their footpads help the polar bears walk on ice and protect their feet from cold. Their food, seals and fish, help them survive by giving them food to eat.

## Score Point: 1

This response correctly lists and correctly explains one trait (thick footpads help the polar bears walk on ice and protect their feet from cold).

## Constructed-Response 2

Polar bear have thick skin so they won't freeze and the have foot pads so they can eat

**Score Point: 0**

This response correctly lists one trait (foot pads) with an incorrect explanation (so they can eat).

**Elementary School Key**

Item #	Key	Benchmark
6	B	IV.1.e.1
9	C	IV.2.e.1
10	C	I.1.e.4
14	CR	I.1.e.6
15	B	V.2.e.2
19	A	V.1.e.3
44	C	III.5.e.1
45	D	III.4.e.2
46	B	III.5.e.1
47	CR	III.4.e.2